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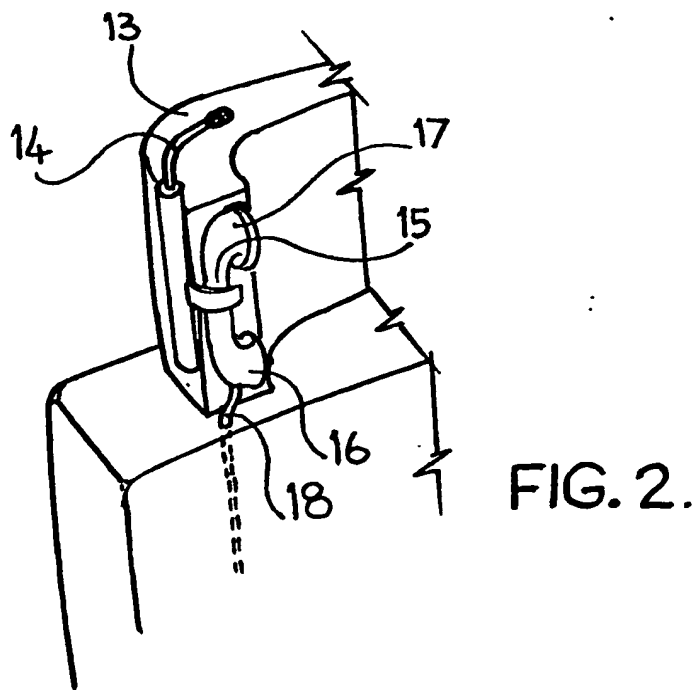
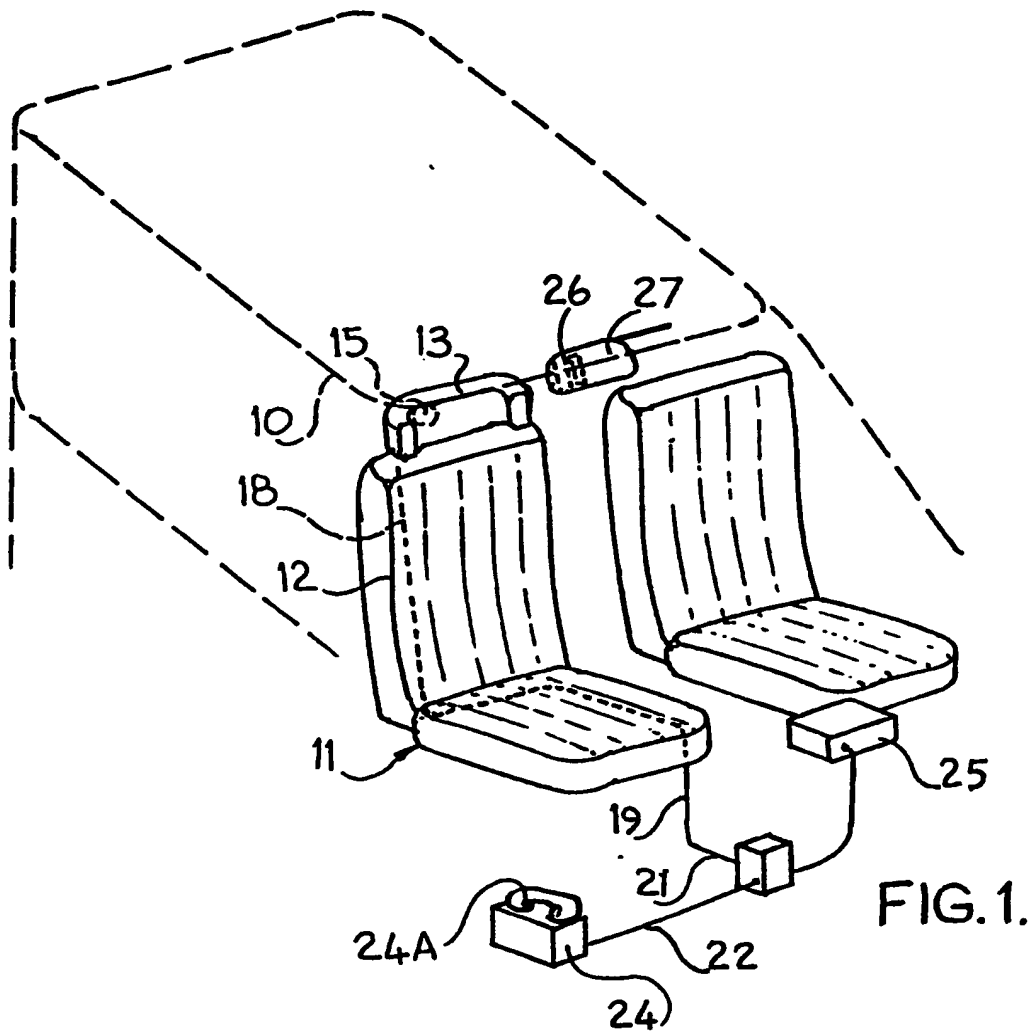
(52) UK CL (Edition K)  
A4L LAAL L109 L150

(56) Documents cited  
GB 2224178 A GB 2223938 A US 4870676 A

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UK CL (Edition K) A4L LAAL  
INT CL<sup>6</sup> B60R  
Online databases:WPI

(54) Telephonic communication unit

(57) A telephone apparatus has a microphone and loudspeaker mounted on a chair or seat in the upper part of the backrest or in the headrest if present, operatively connected to a communication link and a signal receiver/transmitter. Preferably the telephone is a mobile phone system in a motor vehicle, the microphone and loudspeaker being mounted in a seat headrest. The vehicle sun visor may incorporate controls and data display for the telephone.



## COMMUNICATION UNIT

This invention relates to a communication unit. In particular it is concerned with a unit whereby a seated user can communicate by means of a telephone while leaving the hands of the user substantially free for other actions. Such a requirement can arise, for example, when a user is driving or at a workplace.

According to a first aspect of the present invention there is provided a communication unit incorporating:

- 1 a phone unit comprising a microphone and a loudspeaker;
- 2 a chair having a backrest whose upper section is at a height approximating to that of the head of a user seated in the chair;
- 3 mounting means whereby the phone unit is supported by, or incorporated in, the backrest;
- 4 a communication link supported at least in part by the chair having a first end connected to the phone unit and a second end whereby the link can be engaged with a signal source for receiving signals from, and transmitting signals to, the phone unit.

According to a second aspect of the present invention there is provided a vehicle equipped with at least one communication unit according to the first aspect of the present invention and a secondary communication link adapted for connection to the communication link by way of the second end; the secondary link including a wireless transmitter/receiver to enable a user of the phone unit to be used to transmit signals from, or receive signals in the vicinity of, the vehicle.

According to a first preferred version of the second aspect of the present invention the wireless transmitter/receiver is demountably incorporated in the vehicle and the secondary link to enable the transmitter/receiver to be readily withdrawn from the vehicle for use outside the vehicle and thereafter readily restored to the vehicle in the secondary link.

According to a third aspect of the present invention there is provided a vehicle with a communication unit incorporating:

- 1 a phone unit comprising a microphone and a loudspeaker;
- 2 a chair having a backrest whose upper section is at a height approximating to that of a user seated in the chair;
- 3 a mounting arm whereby the phone unit is located in the vehicle whereby the phone unit can be displaced between a working and a storage position relative to a user located in the chair;
- 4 a communication link supported at least in part by the chair having a first end connected to the phone unit and a second end whereby the link can be engaged with a signal source for receiving signals from, and transmitting signals to, the phone unit.

The present invention is intended for use in a variety of environments including an office, a vehicle (such as a car, boat or aircraft) or in a home. An exemplary embodiment of the invention will now be described with reference to the accompanying drawing of a communication unit located in a motor car of which Figure 1 is a diagrammatic outline and Figure 2 is a part sectioned view of a part of Figure 1.

Figure 1 shows in ghosted outline interior 10 of the passenger compartment of car having a driving seat 11 with a high back 12. The high back 12 incorporates a headrest 13 which incorporates (Figure 2) a frame structure 14 which serves to support a phone unit 15. The phone unit 15, which is built into the headrest 13, is made up of a mouthpiece 16 and loudspeaker 17. The term 'phone unit' is merely used for convenience to refer to a unitary assembly of mouthpiece and loudspeaker rather than a more limited term such as 'handset' implying the unit will necessarily be handled. In this case the unit 15 is built into, and so concealed to a great extent by, the structure and trim of the headrest 13.

The phone unit 15 is connected to first end 18 of a communication link 19 which extends downwardly through the seat 12 to second end 21 of the link 19 by means of which the phone unit is incorporated in a secondary communication link 22 mounted in the vehicle trim and serving to link various units with phone unit 15. These units include:

- 1 a wireless transmitter/receiver 24 of known portable type and having a small phone unit 24A. The transmitter/receiver 24 can be readily disconnected from line 22 in the secondary link to enable the transmitter/receiver 24 to be used as an independent unit outside the vehicle and thereafter be connected into line 22 for use in the vehicle;
- 2 a conventional combined car radio 25 (including a cassette player); and
- 3 a key pad 26 whereby a user can regulate operation of the communication link 19 and the secondary link 22 and component parts of it.

Vehicle aeriels for the transmitter/receiver 24 and the radio 25 are of conventional type and structure and are not shown or described further.

These units are mounted around the vehicle interior at convenient locations. In this case the key pad 26 is located on a sun visor 27 so that with the vehicle being driven the driver in seat 11 can be aware of events in front of the vehicle while using the key pad 26 to enter a code whereby the transmitter/receiver 24 will be caused to establish wireless contact with a remote station. The location of the phone unit 15 in the vicinity of the seat occupants ear and mouth enables the occupant to communicate readily with the remote station.

In the event that no transmission is being undertaken while driving the loudspeaker 17 can be driven by the car radio 25. The close location of the loudspeaker 17 to the ear of a listener in the driving seat enables an undistorted signal at reasonable power levels. If desired the headrest can incorporate a pair of loudspeakers to provide for stereo signal reception by a listener.

A demountable transmitter/receiver 24 incorporated link 22 can be removed from the car for use outside the vehicle in a conventional way making use of its own phone unit 24A. On return to the vehicle the transmitter/receiver 24 is plugged back into the secondary communication link 22 to enable the transmitting and receiving sections to be used by way of phone unit 15 as a part of the circuitry of the combined link 19 and secondary link 22 under the

control of the key pad 26.

The embodiment demonstrates the use of a phone unit incorporated in a chair. However it is also envisaged that the phone unit could be mounted on an arm pivotably mounted on another part of the vehicle structure. In this way the phone unit can be readily displaced by a user of the seat between: a working position where the arm enables the phone unit to be presented to the ear and mouth of the user to provide for efficient communication by way of the phone unit; and a storage position to which the phone unit is readily displaced so as not to impede the user such as when in getting into or out of the seat.

Displacement between the working and storage position can be undertaken manually; or by way of a powered displacement device activated by way of the key pad; or on the arrival of a call when following a given number of rings the set is moved to the working position automatically.

While the exemplary embodiment is specifically concerned with a vehicle (in this case a car) communication unit the invention lends itself to a range of applications including vehicles other than cars, such as trucks, boats and ships and aircraft and also to static installations in commercial and domestic environments. The use of built in components in a given context serves to conceal the components making up a given unit which helps to reduce the opportunity of detection, theft or damage by a casual onlooker.

## CLAIMS

- 1 A communication unit incorporating:
  - 1 a phone unit comprising a microphone and a loudspeaker;
  - 2 a chair having a backrest whose upper section is at a height approximating to that of the head of a user seated in the chair;
  - 3 mounting means whereby the phone unit is supported by, or incorporated in, the backrest;
  - 4 a communication link supported at least in part by the chair having a first end connected to the phone unit and a second end whereby the link can be engaged with a signal source for receiving signals from, and transmitting signals to, the phone unit.
- 2 A vehicle equipped with at least one communication unit according to Claim 1 together with a secondary communication link adapted for connection to the communication unit by way of the second end; the secondary link including a wireless transmitter/receiver to enable a user of the phone unit to be used to transmit signals from, or receive signals in the vicinity of, the vehicle.
- 3 A vehicle as claimed in Claim 2 wherein the wireless transmitter/receiver is demountably incorporated in the vehicle and the secondary link to enable the transmitter/receiver is adapted to be readily withdrawn from the vehicle for use outside the vehicle and thereafter readily restored to the vehicle in the secondary link.
- 4 A vehicle with a communication unit incorporating:
  - 1 a phone unit comprising a microphone and a loudspeaker;
  - 2 a chair having a backrest whose upper section is at a height approximating to that of a user seated in the chair;
  - 3 a mounting arm whereby the phone unit is located in the vehicle whereby the phone unit can be displaced between a working and a storage position relative to a user located in the chair;
  - 4 a communication link supported at least in part by the chair having a first end connected to the phone unit and a second end whereby the link can be engaged with a signal source for receiving signals

from, and transmitting signals to, the phone unit.

- 5    A communication unit as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.
- 6    A vehicle as claimed Claims 2, 3 or 4 incorporating a sun visor whereby information derived from the communication unit or from some other source can be displayed to an occupant of the vehicle.

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**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number  
 9026262.7

**Relevant Technical fields**

(i) UK CI (Edition <sup>K</sup> ) A4L LAAL

(ii) Int CI (Edition <sup>5</sup> ) B60R

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASE: WPI

Search Examiner

R B L STAGG

Date of Search

27 JANUARY 1992

Documents considered relevant following a search in respect of claims

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2224178 (KRACO ENTERPRISES INC) see page 1, and lines 1-6 on page 2	1
Y	US 4870676	6
A	GB 2223938	1

Category	Identity of document and relevant passages	Relevant to claim(s)

**Categories of documents**

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

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